



BWP AQ 22

Instructions and Supporting Materials

Table of Contents

- introduction
- permit fact sheet
- instructions for applying
- completeness checklist
- DEP addresses and phone numbers

Introduction

DEP *Permit Applications*, as well as *Instructions & Support Materials*, are available for download from the DEP Web site at mass.gov/dep in two file formats: Microsoft Word and Adobe Acrobat PDF. Either format allows documents to be printed.

Instructions & Support Materials files in Microsoft Word format contain a series of documents that provide guidance on how to prepare a permit application. Although we recommend that you print out the entire package, you may choose to print specific documents by selecting the appropriate page numbers for printing.

Permit Applications in Microsoft Word format must be downloaded separately. Users with Microsoft Word 97 or later may complete these forms electronically.

Permitting packages in Adobe Acrobat PDF format combine *Permit Applications* and *Instructions & Support Materials* in a single document. Adobe Acrobat PDF files may only be viewed and printed without alteration. *Permit Applications* in this format may not be completed electronically.



BWP AQ 22

Permit Fact Sheet

1. What is the purpose of this permit?

The ECP is the instrument used by facilities to demonstrate to DEP and all interested parties including the general public, how they are going to comply with specific emission standards in a regulation and to allow public comment. This process enhances environmental protection by allowing for comments from various interests, and incorporating these comments as well as the regulatory requirements into one document. The application material submitted to the DEP and the plan approval letter become the approved plan.

2. Who must apply?

An ECP is required for municipal waste combustor units subject to 310 CMR 7.08(2). These units are units which combust greater than 250 tons per day of municipal solid waste.

3. What other requirements should be considered when applying for this permit?

None

4. What are the application fees?

The application fee for BWP AQ22 is \$7,180.

5. What is the Primary Permit Location? What is the Reserve Copy Location?

Primary Permit Location:

BWP AQ22 permit applications should be submitted in duplicate to the DEP Regional Office responsible for the community in which the facility is located.

Department of Environmental Protection
BWP Permitting Program, Air Quality Section
_____ * Regional Office

*See "Addresses and Phone Numbers" page included in this package.

If approved, DEP stamps one copy and returns it to you for your records. In this manner, DEP and the applicant have identical copies of the approved submittal. Supplemental forms may be required when completing the ECP. Supplemental forms BWP AQ SFC-1, BWP AQ SFC-3 and BWP AQ SFC-6 are included in this application kit.

Reserve Copy Locations:

There are no Reserve Copy Locations for these permits.



BWP AQ 22

Permit Fact Sheet

6. What are the timelines?

BWP AQ22 applications that are filed and fees received on or after _____ are subject to the following timelines:

Administrative Completeness Review

Within 30 days of receipt of an application and payment of the permit application fee, the Department shall complete an administrative completeness review.

Technical Review

Within 90 days of the close of public comment or administrative completeness period or public hearing, if any, whichever occurs later, the Department shall complete a technical review.

Response to a Notice of Deficiency

The permit applicant may remedy identified deficiencies within 60 days of the Department's statement identifying such deficiencies, if any.

Supplemental Technical Review (only if needed)

Within 90 days of receipt of materials from the applicant in response to a Department notice of deficiency, the Department will complete a supplemental technical review.

Public Comment Period

Within 30 days of the close of the public comment, including any public hearing, the Department shall complete a public comment review and issue or deny the permit.

7. What is the annual compliance fee?

The amount of the annual compliance assurance fee depends upon the facility's potential emissions. Please consult Table 4.03 (Air Quality Section) of 310 CMR 4.03 for more information. If you fail to pay the bill for your annual compliance assurance fee, your permit to operate could be suspended or revoked.

8. How long is this permit in effect?

The permit is in effect until the facility approved in this plan is substantially reconstructed or altered, at which time a new approval may be required.

9. How can I avoid the most common mistakes made in applying for this permit?

- a. Answer all questions on the application form and indicate "N/A" (not applicable) where appropriate.
- b. Be sure to have a legally responsible company official sign the application.
- c. Submit two copies of the application to the regional office (one of which must contain an original signature).
- d. Submit the BWP AQ22 fee of \$7,180 and a copy of the DEP transmittal Form to:

Department of Environmental Protection
P.O. Box 4062, Boston, MA 02211.



BWP AQ 22

Permit Fact Sheet

10. What are the regulations that apply to this permit? Where can I get copies?

These regulations include, but not limited to:

- a. Air Quality Control Regulations, 310 CMR 6.00 - 8.00.
- b. Solid Waste regulations 310 CMR 19.00.
- c. Timely Action and Fee Provisions, 310 CMR 4.00.
- d. Administrative Penalty Regulations, 310 CMR 5.00.

These may be purchased at:

State House Bookstore
Room 116
Boston, MA 02133

State House West Bookstore
436 Dwight Street
Springfield, MA 01103



BWP AQ 22

Instructions for Completing the Permit Application

Emission Control Plan For Owners or Operators Subject To The Municipal Waste Combustor Regulation Under 310 CMR 7.08(2) Municipal Waste Combustors.

SECTION A

1. Facility Information - Give the complete name and address of the facility.
2. Facility Contact Person - Indicate the person responsible for the day to day operations of the facility. Plant manager for example.
3. Facility Owner - This can be a person or a corporation.

SECTION B

Facility Description - Include a description of each stage of the operation for the facility along with a schematic indicating all stages of the process.

SECTION C - This section shall be completed for each unit.

1. Unit Designation - Indicate the designation of each unit (e.g. Unit 1 or Unit A)
2. Manufacturer - List the manufacturer of the unit.
3. Model Number - List the model number of the unit.
4. Maximum Continuous Rated Design Capacity - Indicate in parts a and b the heat input and steam load as applicable.
5. Waste Type - Indicate refuse combustion type (e.g. Mass Burn, RDF, etc.)
6. Heat Recovery - In a - d indicate the method of measuring the load (steam flow meter or feedwater meter), the manufacturer, model number and maximum rating in lbs/hr.
7. Auxiliary Burners - In a - d indicate the manufacturer, model number, type of fuel used and the maximum rating in Btu/hr of any auxiliary burners used.
8. Date of installation - Indicate the date of installation of the unit.

SECTION D

In the Table shown in the ECP application, list all plan approvals the facility is subject to (e.g. 310 CMR 7.02, PSD, etc.) along with the specific emission limits of pollutants which will be regulated under 310 CMR 7.08(2). Convert all existing emission limits to the same units as are outlined in 310 CMR 7.08(2) for the particular pollutant involved. If different permits apply to different units, indicate which permits apply to which units.

SECTION E - Emissions Control For Particulate Matter, Opacity Hydrogen Chloride, Sulfur Dioxides, Cadmium and Lead.

1. Existing Controls - Indicate the types of air pollution control equipment currently being used (e.g. electrostatic precipitator, fabric filter, dry sorbent injection, spray dryer, etc.).



BWP AQ 22

Instructions for Completing the Permit Application

2. Proposed Controls - Indicate the type(s) of air pollution control equipment being proposed.

Complete the form(s) below if the equipment being proposed is one of the following:

1. Fabric Filter - Complete BWP AQ SFC-1
2. Electrostatic Precipitator - Complete BWP AQ SFC-6
3. Spray Dryer - Complete BWP AQ SFC-3
4. Other - The Department shall be notified prior to the submission of the ECP if control equipment being proposed for said pollutants other than that listed in 1, 2 and 3, above is being considered.

Indicate if the existing controls will be removed.

3. Emissions - List emissions limits proposed to satisfy the requirements of 310 CMR 7.08(2). These limits may be either the limits in the regulation or more stringent limits.
4. Include standard operating and maintenance procedures for the proposed air pollution control equipment. If they are not available at the time the ECP application is completed, submit them prior to operation.

SECTION F - Emissions Control for Mercury

Attach a separate sheet describing the emission control equipment being proposed to control mercury if it is not an activated carbon or equivalent sorbent injection system.

For activated carbon or equivalent sorbent injection systems:

1. Attach a separate sheet describing in detail the process. Include a process schematic.
2. Besides the listed information in the ECP, attach a separate sheet describing the process parameters which will be used to control the mercury concentration.
3. - 6. See ECP Application.
7. Include standard operating and maintenance procedures for the proposed carbon injection system. If they are not available at the time the ECP application is completed, submit them prior to operation.

SECTION G - Emission Controls for Nitrogen Oxides

1. Attach a separate sheet describing the emission control equipment being proposed to control Nitrogen Oxides. Attach a separate sheet describing in detail the process, including a process schematic.
2. Attach a separate sheet describing the process parameters which will be used to control the nitrogen oxides concentration.
3. Attach a separate sheet describing the materials that will be used to control nitrogen oxide emissions.
4. - 5. See ECP application.
6. Include standard operating and maintenance procedures for the proposed nitrogen oxide emissions controls. If they are not available at the time the ECP application is completed, submit them prior to operation.



BWP AQ 22

Instructions for Completing the Permit Application

SECTION H - Emission Controls for Fugitive Ash

1. Attach a separate sheet describing the existing emission control equipment being used to control fugitive ash from ash conveying system including transfer points.
2. Attach a separate sheet describing in detail the process, including a process schematic of any proposed modifications to existing controls or any new controls.
3. Include standard operating and maintenance procedures for the proposed ash conveying systems. If they are not available at the time the ECP application is completed, submit them prior to operation.

SECTION I - Retrofit Schedule

Indicate specific dates or no later than dates for 1. - 4. in Section I of the ECP.

SECTION J - Certification

The seal and signature of a registered professional engineer.

SECTION K - Demonstration of Compliance

The signature of a responsible official as defined in 310 CMR 7.00, definitions.

**Most DEP permit application packages
are available from DEP's web site at**

<http://mass.gov/dep>

<p>This information is available in alternative format upon request to DEP's ADA Coordinator, BAS/HR, 4th Flr. One Winter Street, Boston, MA 02108</p>
--



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention - Permitting - Air Quality Section

BWP AQ 22 Municipal Waste Combustor - Emission Control Plan (ECP) **Application Completeness Checklist**

- ☐ The DEP Transmittal Form has been completed.
- ☐ The BWP AQ22 Permit Application Form has been completed in accordance with "Instructions for Completing the Permit Application." All questions have been answered or N/A inserted where appropriate.
- ☐ A signature of the legally responsible official has been included even if an agent has been hired to complete the application.

To submit a BWP AQ22 application package:

- ☐ Ensure all Checklist items have been completed.
- ☐ Two copies of the application package have been prepared and submitted with the DEP Transmittal Form to the DEP Regional Office responsible for the community in which the facility is located.

Department of Environmental Protection
BWP Permitting Program, Air Quality Section
_____ * Regional Office

*See "Addresses and Phone Numbers" page included in this package.

- ☐ The BWP AQ22 fee of \$7,180 in the form of a check or money order payable to the Commonwealth of Massachusetts and a copy of the DEP Transmittal Form have been submitted to::

Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211



Massachusetts Department of Environmental Protection

Addresses and Phone Numbers

DEP Boston
One Winter Street
Boston, MA 02108
Telephone: (617) 292-5500
Fax: (617) 556-1049
TDD: (617) 574-6868

William X. Wall Experiment Station
37 Shattuck Street
Lawrence, MA 01843
Fax: (978) 688-0352
Division of Environmental Analysis
Telephone: (978) 682-5237
Air Quality Surveillance
Telephone: (978) 975-1138

Office of Watershed
Management
627 Main Street
Worcester, MA 01608
Telephone: (508) 792-7470
Fax: (508) 839-3469

Millbury Training Center
Route 20 Millbury, MA 01527
Telephone: (508) 368-5600
Fax: (508) 755-9253
Residuals Sludge Management
Telephone: (508) 368-5606
WWT Operator Certification
Telephone: (508) 368-5698

DEP Western Region
436 Dwight Street
Suite 402
Springfield, MA 01103
Phone: (413) 784-1100
Fax: (413) 784-1149



Adams
Agawam
Alford
Amherst
Ashfield
Becket
Belchertown
Bernardston
Blandford
Brimfield
Buckland
Charlemont
Cheshire
Chester
Chesterfield
Chicopee
Clarksburg

Colrain
Conway
Cummington
Dalton
Deerfield
Easthampton
East Longmeadow
Egremont
Erving
Florida
Gill
Goshen
Granby
Granville
Great Barrington
Greenfield
Hadley

Hampden
Hancock
Hatfield
Hawley
Heath
Hinsdale
Holland
Holyoke
Huntington
Lanesborough
Lee
Lenox
Leverett
Leyden
Longmeadow
Ludlow
Middlefield

Monroe
Montague
Monterey
Montgomery
Monson
Mount Washington
New Ashford
New Marlborough
New Salem
North Adams
Northampton
Northfield
Orange
Otis
Palmer
Pelham
Peru

Pittsfield
Plainfield
Richmond
Rowe
Russell
Sandisfield
Savoy
Sheffield
Shelburne
Shutesbury
Southampton
South Hadley
Southwick
Springfield
Stockbridge
Sunderland
Tolland

Tyringham
Wales
Ware
Warwick
Washington
Wendell
Westfield
Westhampton
West Springfield
West Stockbridge
Whately
Wilbraham
Williamsburg
Williamstown
Windsor
Worthington

DEP Central Region
627 Main Street
Worcester, MA 01608
Phone: (508) 792-7650
Fax: (508) 792-7621
TDD: (508) 767-2788



Acton
Ashburnham
Ashby
Athol
Auburn
Ayer
Barre
Bellingham
Berlin
Blackstone
Bolton
Boxborough
Boylston
Brookfield

Charlton
Clinton
Douglas
Dudley
Dunstable
East Brookfield
Fitchburg
Gardner
Grafton
Groton
Harvard
Hardwick
Holden
Hopedale

Hopkinton
Hubbardston
Hudson
Holliston
Lancaster
Leicester
Leominster
Littleton
Lunenburg
Marlborough
Maynard
Medway
Mendon
Milford

Millbury
Millville
New Braintree
Northborough
Northbridge
North Brookfield
Oakham
Oxford
Paxton
Pepperell
Petersham
Phillipston
Princeton
Royalston

Rutland
Shirley
Shrewsbury
Southborough
Southbridge
Spencer
Sterling
Stow
Sturbridge
Sutton
Templeton
Townsend
Tyngsborough
Upton

Uxbridge
Warren
Webster
Westborough
West Boylston
West Brookfield
Westford
Westminster
Winchendon
Worcester

DEP Southeast Region
20 Riverside Drive
Lakeville, MA 02347
Phone: (508) 946-2700
Fax: (508) 947-6557
TDD: (508) 946-2795



Abington
Acushnet
Attleboro
Avon
Barnstable
Berkley
Bourne
Brewster
Bridgewater
Brockton
Carver
Chatham
Chilmark

Dartmouth
Dennis
Dighton
Duxbury
Eastham
East Bridgewater
Easton
Edgartown
Fairhaven
Fall River
Falmouth
Foxborough
Franklin

Freetown
Gay Head
Gosnold
Halifax
Hanover
Hanson
Harwich
Kingston
Lakeville
Mansfield
Marion
Marshfield
Mashpee

Mattapoisett
Middleborough
Nantucket
New Bedford
North Attleborough
Norton
Norwell
Oak Bluffs
Orleans
Pembroke
Plainville
Plymouth
Plympton

Provincetown
Raynham
Rehoboth
Rochester
Rockland
Sandwich
Scituate
Seekonk
Sharon
Somerset
Stoughton
Swansea
Taunton

Tisbury
Truro
Wareham
Wellfleet
West Bridgewater
Westport
West Tisbury
Whitman
Wrentham
Yarmouth

DEP Northeast Region
1 Winter Street
Boston, MA 02108
Phone: 617-654-6500



Amesbury
Andover
Arlington
Ashland
Bedford
Belmont
Beverly
Billerica
Boston
Boxford
Braintree
Brookline
Burlington
Cambridge
Canton
Carlisle

Chelmsford
Chelsea
Cohasset
Concord
Danvers
Dedham
Dover
Dracut
Essex
Everett
Framingham
Georgetown
Gloucester
Groveland
Hamilton
Haverhill

Hingham
Holbrook
Hull
Ipswich
Lawrence
Lexington
Lincoln
Lowell
Lynn
Lynnfield
Malden
Manchester-By-The-Sea
Marblehead
Medfield
Medford
Melrose

Merrimac
Methuen
Middleton
Millis
Milton
Nahant
Natick
Needham
Newbury
Newburyport
Newton
Norfolk
North Andover
North Reading
Norwood
Peabody

Quincy
Randolph
Reading
Revere
Rockport
Rowley
Salem
Salisbury
Saugus
Sherborn
Somerville
Stoneham
Sudbury
Swampscott
Tewksbury
Topsfield

Wakefield
Walpole
Waltham
Watertown
Wayland
Wellesley
Wenham
West Newbury
Weston
Westwood
Weymouth
Wilmington
Winchester
Winthrop
Woburn



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention - Permitting - Air Quality Section

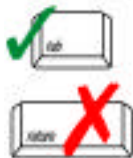
BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Facility Information

1. Facility:

Facility Name _____

Street Address _____

City _____

State _____

Zip Code _____

Mailing address (if different from above):

Street Address _____

City _____

State _____

Zip Code _____

2. Facility Contact Person:

Name _____

Title _____

Telephone Number (include area code and extension) _____

3. Facility Owner:

Owner or Corporation Name _____

Telephone Number (include area code and extension) _____

B. Facility Description and Plant Schematic (Attach Separate Sheet)

C. Incinerator Unit (Complete Section C for each unit)

1. Unit Number _____

2. Manufacturer _____

3. Model Number _____

4. Maximum Continuous Rated Design Capacity:

a. Heat Input _____

MMBtu/hr

b. Steam Load _____

lbs/hr

5. Waste Type _____



BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

C. Incinerator Unit (cont.)

6. Heat Recovery? ☐ Yes ☐ No

a. Steam Flow Meter (or Feedwater Meter) _____

b. Manufacturer(s) or Equivalent _____

c. Model Number _____

d. Maximum Rating _____
lb/hr

7. Auxiliary Burners:

a. Manufacturer(s) or Equivalent _____

b. Model Number _____

c. Type of Fuel Used _____

d. Maximum rating _____
Btu/hr

8. Date of Installation _____

D. Existing Permits

1. In the Table below list all existing Plan Approvals the facility is currently subject to, including specific emission limits. One objective of the ECP is to minimize redundant recordkeeping by the facility while at the same time improving the reporting requirements by having all pertinent information reported in a uniform and standardized format.

Since 310 CMR 7.08(2) establishes emissions limits in terms of concentrations, all existing Plan Approval emission limits shall be converted to concentrations. The methodology involved in converting existing emission limits (e.g. lbs/MMBtu) to concentrations (e.g. mg/dscm) must be included in this ECP along with detailed calculations, references and any assumptions made in the conversion. (Attach Separate Sheet)

Approval Number	Regulated Pollutants	Current Emission Limits	Converted Emission Limits	Averaging Time
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____



BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

E. Emissions Control for PM, OPACITY, HCl, SO₂, Cd and Pb

(Complete Section E for each unit)

1. Existing Controls: (If none, check here ☐)

	PM, Opacity, Cd and Pb	HCl and SO ₂
Type	_____	_____
Manufacturer(s) or Equivalent	_____	_____
Model	_____	_____
Date of Installation	_____	_____
Expected Useful Life of the Equipment	_____	_____
Efficiency of Unit	_____	_____
Capacity of the Unit	_____	_____
	scfm	scfm

2. Proposed Controls: (If none, check here ☐)

	PM, Opacity, Cd and Pb	HCl and SO ₂
Type	_____	_____
1 - Fabric Filter use form BWP AQ SFC-1		
2 - ESP use form BWP AQ SFC-6		
3 - Spray Dryer use form BWP AQ SFC-3		
4 - Other (See attached instructions)		

Are Existing Emission Controls Being Removed? ☐ Yes ☐ No

3. Emissions Limitations:

Proposed Emission Limits: (mg/dscm, ppmv @ 7% O ₂)	Average Time if Applicable
PM	_____
Cd	_____
Pb	_____
SO ₂	_____
HCl	_____
Opacity	_____



BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

E. Emissions Control for PM, OPACITY, HCl, SO₂, Cd and Pb (cont.)

4. Standard Operating and Maintenance Procedures: (Shall be submitted prior to operation):

F. Emissions Control for Mercury

Proposed Controls If Not Activated Carbon Injection System: (Attach Separate Sheet)

Activated Carbon Injection System:

1. Process Description: _____

2. Process Parameters:	Unit 1	Unit 2	Unit 3
a. Flue Gas Flow Rate Per Unit:	_____	_____	_____
	dscm/min@7%O ₂	dscm/min@7%O ₂	dscm/min@7%O ₂
b. Estimated Maximum Uncontrolled Mercury Concentration:	_____	_____	_____
	mg/dscm@7%O ₂	mg/dscm@7%O ₂	mg/dscm@7%O ₂

3. Design Parameters:			
a. Design Control Emission Limitation:	_____	_____	_____
	mg/dscm@7%O ₂	mg/dscm@7%O ₂	mg/dscm@7%O ₂
b. Design Control Efficiency at Maximum Estimated Uncontrolled Mercury Concentration:	_____	_____	_____
	%	%	%

4. Carbon Handling:			
a. Raw Materials	% Residual Volatile Content	Internal Surface Area	Average Pore Radius
_____	_____	_____	_____
		m ² /g	meters
_____	_____	_____	_____
		m ² /g	meters
_____	_____	_____	_____
		m ² /g	meters

5. Carbon Storage Facility:
- a. Type of Tank, Bin or Hopper: _____
- Dimensions: _____ Capacity: _____



BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

F. Emissions Control for Mercury (cont.)

- b. Is Dust Collector Required? ☐ Yes ☐ No

1. If yes, the dust collector shall meet the design criteria in 310 CMR 7.03(9)

6. Activated Carbon Handling System:

- a. Manufacturer(s) or Equivalent of equipment: _____
1. Volumetric Feeder: _____
2. Injection System: _____
- b. Expected Useful Life of the Equipment: _____
yrs
- c. Capacity of the System: _____

7. Standard Operating and Maintenance Procedures (Shall be submitted prior to operation)

G. Emission Control for Nitrogen Oxides

Proposed Controls: (If none, check here ☐)

1. Process Description (Attach Separate Sheet)
2. Design Parameters (Attach Separate Sheet)
3. Materials Handling Description (Attach Separate Sheet)

4. Process Parameters:	Unit 1	Unit 2	Unit 3
a. Flue Gas Flow Rate:	_____	_____	_____
	dscm/min@7%O ₂	dscm/min@7%O ₂	dscm/min@7%O ₂
b. Estimated Maximum Uncontrolled NOx Concentration:	_____	_____	_____
	ppmv@7%O ₂	ppmv@7%O ₂	ppmv@7%O ₂
c. Estimated Average Uncontrolled NOx Concentration:	_____	_____	_____
	ppmv@7%O ₂	ppmv@7%O ₂	ppmv@7%O ₂
d. Design Control Emission Limitation:	_____	_____	_____
	ppmv@7%O ₂	ppmv@7%O ₂	ppmv@7%O ₂
e. Design Control Efficiency at Maximum Estimated Uncontrolled NOx Concentration:	_____	_____	_____
	%	%	%



BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

G. Emission Control for Nitrogen Oxides (cont.)

5. Reagent Storage Facility:

a. Type of Tank, Bin or Hopper: _____

Dimensions: _____ Capacity: _____

b. Is Dust and/or Vapor Collector Required? ☐ Yes ☐ No

1. If yes, submit detailed data for the dust and/or vapor collection equipment, such as, but not limited to, capture efficiency, temperature capability, maximum capacity, and method of cleaning

6. Standard Operating and Maintenance Procedures (Shall be submitted prior to operation)

H. Fugitive Ash Handling Emission Controls

1. Description of Existing Controls (Attach Separate Sheet)
2. Description of Proposed Controls (Attach Separate Sheet)
3. Standard Operating and Maintenance Procedures (Shall be submitted prior to operation)

I. Retrofit Schedule

Municipal Waste Combustor Facilities Requiring Longer Than 18 Months to Comply with the Regulation Shall Provide the Following:

1. Dates of all existing contract awards involving air pollution control systems or for process modifications. Dates for issuance of any additional orders for the purchase of air pollution control equipment. All contracts necessary to bring the municipal waste combustor unit(s) into compliance shall be executed no later than eighteen months from the effective date of the regulation.
2. Date initiating on-site construction or installation of air pollution control equipment or process modification, as necessary. This date shall not exceed twenty four months from the effective date of the regulation.
3. Date the completion of on-site construction or installation of air pollution control equipment, or process modification will be achieved. This date shall not exceed thirty months from the effective date of this regulation, but no later than November 19, 2000.



BWP AQ 22

Municipal Waste Combustor - Emission Control Plan (ECP)

Transmittal Number _____

Facility ID# (if known) _____

J. Professional Engineer Certification

The seal and signature of a Massachusetts Registered Professional Engineer must be entered below. This certifies that the information contained in this application has been checked for accuracy, and that the design represents good air pollution control engineering practice.

Print Name

Authorized Signature

Position/Title

Representing

Date

P.E. #

K. Affirmative Demonstration of Compliance

The signature below provides the affirmative demonstration pursuant to 310 CMR 7.08(2) j.3. that any facility(ies) in Massachusetts, owned or operated by the proponent for this project (or by an entity controlling, controlled by or under common control with such proponent) that is subject to 310 CMR 7.00, et seq. and 310 CMR 19.00, et seq., is in compliance with, or on a Department approved compliance schedule to meet, all provisions of 310 CMR 7.00, et seq. and 310 CMR 19.00 et seq., and any plan approval, order, notice of noncompliance or permit issued thereunder. This form must be signed by a reasonable official working at the location of the proposed new or modified facility. Even if an agent has been designated to fill out this form, the responsible official must sign it. (Refer to the definition given in 310 CMR 7.00.)

I certify that I have examined the responses provided herein and that to the best of my knowledge they are true and complete.

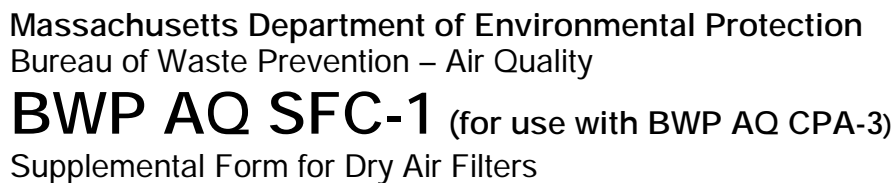
Print Name

Signature of Responsible Official

Position/Title

Representing

Date



Facility ID# (if known)

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

1. Name of Facility
2. Location of project site:
Street
City/Town Zip Code

DEP Use Only

Permit No.

Received Date

Reviewer

Permit

— Approved
— Denied

Decision Date

- | | | |
|--|---------------------------------|-------------------------------------|
| 1. Manufacturer | <hr/> | |
| 2. Model# (attach manufacturer's brochures and specifications) | <hr/> | |
| 3. What is the capacity of the unit? | <hr/> | <hr/> |
| | ACFM | in. W.G. pressure drop |
| 4. How many compartments are in the unit? | <hr/> | |
| 5. How many filter elements are in each compartment? | <hr/> | |
| 6. What type of filter material is used? | <hr/> | |
| 7. Is the filter material: | <input type="checkbox"/> woven? | <input type="checkbox"/> non-woven? |
| 8. What is the maximum recommended temperature? (°F). | <hr/> | |
| 9. Describe filter elements (tubes, envelopes, cartridges, other) | <hr/> | |
| 10. What is the real effective area per filter element (ft. ²) | <hr/> | |



BWP AQ SFC-1 (for use with BWP AQ CPA-3)
Supplemental Form for Dry Air Filters

Transmittal Number _____

Facility ID# (if known) _____

D. Operating Conditions for this Permit

1. What is the average inlet gas flow? _____
(ACFM, wet)
2. What is the moisture content in the inlet? _____
(lbs/min) (grains/ACF)
3. What is the face velocity? _____
(ft/sec)
4. What are the gas temperatures (°F, dry bulb) for the _____
inlet? outlet?
5. What is the pressure drop across the unit? (in. W.G.) _____
minimum maximum

NOTE: Supporting calculations and explanatory notes must be attached.

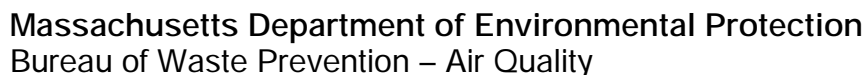
E. Particulate Collection Data

1. Describe the particle size weight to be emitted by the proposed unit:

	% of total weight	% of fraction collected
a. < 1 micron:	_____	_____
b. 1 micron < 10 microns:	_____	_____
c. 10 microns < 50 microns:	_____	_____
d. > 50 microns:	_____	_____
2. What is the overall particulate collection efficiency? _____
3. What is the inlet particulate concentration? (gr/ACF) _____
4. What is the outlet particulate concentration? (gr/ACF) _____
5. What is the emission rate? (lbs/hr) _____

F. Cleaning Procedures and Particulate Disposal

1. Describe the cleaning mechanism (pulse jet, reverse jet, sonic, rapping, or other) _____
2. What is the estimated time between cleaning phases? _____
Seconds
3. How many filter elements are cleaned at the same time? _____



Transmittal Number

BWP AQ SFC-1 (for use with BWP AQ CPA-3)

Supplemental Form for Dry Air Filters

Facility ID# (if known)

F. Cleaning Procedures and Particulate Disposal (cont.)

4. Describe the controller (timer, pressure gauge, or other): _____
5. What are the number of filter elements in operation during the cleaning phase? _____
6. Describe the collection hoppers and unloading schedule

7. How is the unloading schedule documented?

8. What is the ultimate disposal method?

9. Is the dust subject to 310 CMR 30.00, pertaining to Hazardous Waste?
☐ Yes ☐ No

G. Air Flow Data

1. What is the air flow into the filter system? (ACFM)

minimum

maximum
2. Describe what measures are taken to evenly distribute inlet air to all filter elements:
3. What is the air to cloth ratio? (ACFM divided by the effective filter area):

NOTE: Detailed fan specifications must be supplied with this application. See form BWP AQ CPA-3 for instructions.

H. Drawing of Dry Air Filter Unit

A schematic drawing of the dry air filter unit must be **attached** to this form. The drawing must show all access doors, catwalks, ladders, and exhaust ductwork. In addition, the location of each pressure and temperature indicator must be shown.



BWP AQ SFC-1 (for use with BWP AQ CPA-3)
Supplemental Form for Dry Air Filters

Transmittal Number _____

Facility ID# (if known) _____

I. Failure Notification

1. How is the failure of the dry air filter made known to the operator during normal operations (e.g. audible alarm, flashing lights, temperature indicator, pressure indicator, etc.)?

2. Describe the record keeping procedures to be used in identifying the cause, duration and resolution of each failure (use a separate page if necessary)

NOTE: The regional office must be notified immediately by telephone in the event of a dry air filter failure.

J. Certification

The seal and signature of a Massachusetts Registered Professional Engineer must be entered to the right. This certifies that the information contained in this form has been checked for accuracy, and that the design represents good air pollution control engineering practice. (These must be originals; no photocopies, etc. of the seal and signature will be accepted.)

Print Name _____

Authorized Signature _____

Position/Title _____

Representing _____

Date _____

P.E. # _____



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Air Quality

BWP AQ SFC-3 (for use with BWP AQ CPA-3)

Supplemental Form for Wet Collection Equipment

Transmittal Number _____

Facility ID# (if known) _____

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Plan Application Requirements

This form is to be submitted together with forms BWP AQ CPA1, CPA3 or CPA4, prior to the construction, substantial reconstruction or alteration of **Wet Collection Equipment**.

B. Project Location

1. Name of facility: _____

2. Location of project site: _____

Street _____

City/Town _____

Zip Code _____

C. Wet Collection Equipment Specifications

1. Manufacturer _____

2. Model # _____

3. What is the capacity of the unit? _____

SCFM

@ standard temperature of °F _____

4. What type of unit is being installed? (e.g. gravity spray tower, plate scrubber, venturi scrubber, packed bed scrubber, centrifugal spray scrubber, other):

5. What material is the outer shell made of? (mild steel, stainless steel, non-ferrous metal, plastic, other)

6. What material is the inner shell made of?

DEP Use Only

Permit No. _____

Received Date _____

Reviewer _____

Permit

___ Approved

___ Denied

Decision Date _____



BWP AQ SFC-3 (for use with BWP AQ CPA-3)
Supplemental Form for Wet Collection Equipment

Transmittal Number _____

Facility ID# (if known) _____

C. Wet Collection Equipment Specifications (cont.)

7. What is the expected useful life of the equipment? _____
yrs
8. What steps have been taken to protect against corrosion?

NOTE: Dimension plan(s) of the collection equipment must be attached to this form. The plan(s) must show, at a minimum, the gas inlet duct, gas outlet duct, liquid inlet piping, liquid outlet piping, back flow preventor location, access doors, temperature sensors, pH indicators, flow sensors, liquid level sensors, stack location, nozzle locations, by-pas stack location and other scrubber internals.

9. What is the cross-sectional area? _____
square feet
10. How many collection stages are there? _____
11. What is the length of the unit? _____
feet
12. What is the cross-sectional shape? _____
square, round, etc.
13. Describe the internal features (e.g. demisters, gas/liquid diffusion plates, liquid redistributors, bed limiters, etc.):

D. Operating Parameters

1. What is the inlet gas flow rate? _____
ACFM, wet
2. What is the inlet moisture rate? _____
lbs/min
3. What is the temperature of the: inlet? _____ °F
outlet? _____ °F
4. What is the static pressure in the: inlet? _____
in. of water
outlet? _____
in. of water



BWP AQ SFC-3 (for use with BWP AQ CPA-3)
Supplemental Form for Wet Collection Equipment

Transmittal Number _____

Facility ID# (if known) _____

D. Operating Parameters (cont.)

5. What is the outlet gas flow rate? _____

ACFM, wet

6. What is the normal oxidation/reduction
potential set point range? _____

7. What is the normal pH set point range? _____

E. Emission Data

1. Give the maximum gaseous emission rates at stack exit:

	Chemical Name	Before Control (lbs/hr)	After Controls (lbs/hr)	After Controls (ug/DSCM*)
a.	_____	_____	_____	_____
b.	_____	_____	_____	_____
c.	_____	_____	_____	_____

* DSCM = Dry Standard Cubic Meter

2. What is the overall gaseous collection efficiency? _____

%

3. Give the maximum particulate emission rates at stack exit:

	Chemical Name	Before Control (lbs/hr)	After Controls (lbs/hr)	After Controls (ug/DSCM*)
a.	_____	_____	_____	_____
b.	_____	_____	_____	_____
c.	_____	_____	_____	_____

* DSCM = Dry Standard Cubic Meter

4. Describe the particulate size for the proposed unit: (include citations of test data or a list of references used):

	% of total	% of fraction collected
a. < 1 micron:	_____	_____
b. 1 micron < 10 microns:	_____	_____
c. 10 microns < 50 microns:	_____	_____
d. > 50 microns:	_____	_____

BWP AQ SFC-3 (for use with BWP AQ CPA-3)

Supplemental Form for Wet Collection Equipment

Facility ID# (if known)

E. Emission Data (cont.)

- | | | |
|---|------------|---------------|
| 5. What is the overall particulate collection efficiency? | _____ | |
| | mass % | |
| 6. What is the inlet particulate concentration? | _____ | |
| | grains/ACF | |
| 7. What is the outlet particulate concentration? | _____ | |
| | grains/ACF | |
| 8. What is the capture efficiency of the ventilation system serving the collection equipment? | _____ | _____ |
| | gaseous % | particulate % |

NOTE: Supporting calculations and explanatory notes must be attached for the above %'s. Failure to submit data will render the plans application incomplete.

F. Description of Scrubbing Liquid

1. Give the complete chemical name of the scrubbing liquid: _____
2. What is the normal scrubbing liquid flow rate? (indicate flowmeter location on the process diagram) _____ gpm
3. What is the liquid temperature at the: inlet? _____ °F
outlet? _____ °F
4. What is the density of the liquid? _____ lb/gal @ operating temperature of °F
5. What is the liquid pressure to the nozzles? (indicate pressure gauge location on the process diagram) _____ psig
6. If the liquid is recirculated, what is the make-up rate? _____ gpm
7. If the liquid is recirculated, what is the recirculation rate? _____ gpm
8. Is the recirculated liquid treated for re-use?
☐ Yes ☐ No
If Yes, explain: _____
9. Is the pH of the liquid controlled for the purpose of maintaining collection efficiency?
☐ Yes ☐ No
If yes, how is pH measured? _____
If yes, how is pH controlled? _____



F. Description of Scrubbing Liquid (cont.)

10. Give a description of the chemical additive(s) used:

	Chemical Name	Max. Feed Rate (lbs/hr)	% Strength (as mixed w/ water)	Reaction Products
a.	_____	_____	_____	_____
b.	_____	_____	_____	_____
c.	_____	_____	_____	_____

11. Give a detailed description of the contaminants transferred to the scrubbing liquid:

a. Liquid/solid contaminants: _____
lbs/hr

briefly describe: _____

b. Gases absorbed: _____
lbs/hr

briefly describe: _____

c. Are these contaminants subject to 310 CMR 30.00 pertaining to the control of Hazardous Waste?

☐ Yes ☐ No

If yes, identify the company which will dispose of the contaminated scrubbing liquid:

d. Is a discharge permit (BWPIWW02) needed?

☐ Yes ☐ No

If Yes, attach copy of the permit

The following six sections ask questions about specific types of wet collection equipment.
The applicant should respond only to those questions pertaining to the proposed unit.

G. Gravity Spray Tower Scrubber

1. What type of spray nozzles will be installed? (pressure, rotating, gas atomizing, sonic, other, explain):



BWP AQ SFC-3 (for use with BWP AQ CPA-3)
Supplemental Form for Wet Collection Equipment

Transmittal Number _____

Facility ID# (if known) _____

G. Gravity Spray Tower Scrubber (cont.)

2. How many nozzles will be installed? _____
3. Give the location of each nozzle: _____
4. What is the pressure drop across the nozzles? _____
psig
5. What is the normal liquid to gas ratio? _____
by weight
_____ specify units
square feet
6. Give the cross sectional area of the tower: _____
square feet
7. What is the height of the tower? _____
feet
8. What is the superficial gas velocity? _____
feet/second
9. Is the gas flow: ☐ concurrent? ☐ countercurrent?
10. What is the gas retention time? _____
seconds
11. Is a mist eliminator used? ☐ Yes ☐ No
12. Are baffles present? ☐ Yes ☐ No
13. Does the unit have liquid redistributors? ☐ Yes ☐ No
14. Describe other features:

H. Centrifugal Spray Scrubber

1. What is the normal liquid to gas ratio? _____
by weight
_____ specify units
2. What is the height of the unit? _____
feet
3. What is the diameter of the unit? _____
feet
4. What is the retention time of the gas? _____
seconds
5. Is the spray directed outward? ☐ Yes ☐ No



H. Centrifugal Spray Scrubber (cont.)

6. What type of spray nozzles will be installed? (pressure, rotating, gas atomizing, sonic, other, explain)

I. Plate Scrubber

1. What is the normal liquid to gas ratio?

by weight

specify units

2. What is the cross sectional area?

square feet

3. What is the height of the unit?

feet

4. How many trays are there?

5. What is the spacing between the trays?

6. List and describe briefly, the type of tray to be used (sieve, impingement, bubble cap, valve, other):

7. What is the depth of the liquid seal?

inches

8. What is the size of the tray active area?

square inches

9. What is the size of the tray downcomer area?

square inches

10. What is the size of the tray perforation area?

square inches

11. What is the number of liquid passes per tray?

12. What is the type of flow?

cross, counter, cascade, split

13. List other internal features:



BWP AQ SFC-3 (for use with BWP AQ CPA-3)
Supplemental Form for Wet Collection Equipment

Transmittal Number _____

Facility ID# (if known) _____

J. Venturi Scrubbers

1. What is the normal liquid to gas ratio?

_____ by weight

_____ specify units

2. Is the throat adjustable? ☐ Yes ☐ No

3. If Yes, how is it controlled? (describe briefly):

4. How large is the throat area?

_____ square inches

5. What is the shape of the throat cross section?

6. What is the throat pressure drop?

_____ inches of water

7. What is the throat velocity?

_____ feet/second

K. Packed Bed Scrubber

1. What is the normal liquid to gas ratio?

_____ by weight

_____ specify units

2. What is the height of the bed?

_____ feet

3. What is the cross sectional area of each bed?

_____ square feet

4. Describe the type of packing element:

5. What is the size of the packing element?

_____ inches

6. Is the packing: ☐ random? ☐ stacked? ☐ other?

If other, explain: _____

7. How many stages are there?

8. What is the packing factor (as given by manufacturer)?

9. What is the height of the transfer unit?

_____ feet

10. How many transfer units per bed are there?

11. What is the liquid flooding point?

_____ cubic feet/second

12. What is the gas loading point?

_____ cubic feet/second



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Air Quality

BWP AQ SFC-3 (for use with BWP AQ CPA-3)
Supplemental Form for Wet Collection Equipment

Transmittal Number _____

Facility ID# (if known) _____

K. Packed Bed Scrubber (cont.)

13. The operating point is what % of the flooding point? _____

%

14. What is the pressure drop per foot of packing? _____

inches of water

15. Describe the packed bed (crossflow, counterflow, parallel flow, fluid bed, flooded bed, other):

16. What is the number of liquid redistributors? _____

17. What is the distance between the liquid redistributors? _____

inches

(Attach separate sheet if necessary)

L. Failure Notification

1. How is the failure of the collection device made known to the operator? (e.g. audible alarm, lights, etc.):

2. Describe the record keeping procedures that will be used in identifying the cause, duration, and resolution of each failure (use a separate page if necessary):

M. Certification

The seal and signature of a Massachusetts Registered Professional Engineer must be entered to the right. This certifies that the information contained in this form has been checked for accuracy, and that the design represents good air pollution control engineering practice. (These must be originals; no photocopies, etc. of the seal and signature will be accepted.)

Print Name

Authorized Signature

Position/Title

Representing

Date

Date



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention - Air Control

BWP SFC-6 (for use with BWP AQ 02, 03)

Supplemental Form for Electrostatic Precipitator

Transmittal Number _____

Facility _____

Important:
When filling out
forms on the
computer, use
only the tab key
to move your
cursor - do not
use the return
key.



A. Plans Application Requirements

This form is to be submitted together with form BWP AQ CPA-1, CPA-3, or CPA-4, whenever the modification or the installation of an Electrostatic Precipitator is desired.

B. Project Location

Name of facility _____

Location of project site _____

Street Address _____

City/town _____

State _____

Zip code _____

C. Equipment Specifications

1. Manufacturer _____
2. Model number _____
3. What is the capacity of the unit? _____
SCFM
4. Describe the stages:
 - a. Single stage _____
 - b. Two-stage _____
5. Does the units use: ☐ Plates ☐ Tubes
6. How many power units are there? _____

D. Conditions in the Gas Stream

1. What the inlet gas flow? _____
acfm, wet
2. What the moisture content in the inlet? _____
lbs./min.
3. What is the inlet velocity? _____
feet./second
4. Describe the gas temperature:
inlet gas temperature (°F) _____
outlet gas temperature (°F) _____
5. Is the inlet steam pre-cooled? ☐ Yes ☐ No



BWP SFC-6 (for use with BWP AQ 02, 03)

Supplemental Form for Electrostatic Precipitator

E. Description of Particulate Pollutant

1. Give a brief description of the particulate/aerosol in gas stream (chemical analysis):

NOTE: The answers to the following questions require supporting calculations and explanatory notes before they can be accepted as part of the plan review.

2. Describe the particle size to be emitted by the proposed unit (in microns):

	% of total weight	% of fraction collected
a. < 1 micron:	_____	_____
b. 1 < 10 microns:	_____	_____
c. 10 < 50 microns:	_____	_____
d. > 50 microns:	_____	_____

3. Overall particulate collection efficiency: _____
4. Inlet particulate concentration: _____
grns./acf
5. Outlet particulate concentration: _____
grns./acf
6. Emission rate: _____
lbs./hour
7. Particulate resistivity _____
ohm-cm
8. Temperature at resistivity _____
°F
9. Measure of % water at resistivity _____

10. Is the inlet stream conditioned? ☐ Yes ☐ No

If yes, explain: _____

11. Is the inlet stream pre-cleaned? ☐ Yes ☐ No

If yes, explain: _____



F. Warning System

1. Describe the warning/alarm system that protects against operation when unit is not meeting design efficiency:

G. Power Requirements

1. Describe the power requirements, if the unit is single stage:

- a. How is the power applied?

_____ watts/1000acfm

- b. What is the voltage applied?

_____ kilovolts

2. Describe the power requirements, if the unit is two stage:

- a. How much power is applied

_____ watts/1000acfm

- b. What is the ionizer voltage applied

_____ kilovolts

- c. What is the number of ionizer banks?

- d. What is the collector voltage

_____ kilovolts

3. Describe the transformer rectifier sets:

- a. How many transformer rectifier sets are there?

- b. What is the size of the transformer rectifier sets?

4. Describe the discharge electrode:

- a. What length of wire is used?

- b. What type of wire is used?

☐ Weighted

☐ Rigid

☐ Electrode

- c. Is the wire shrouded?

☐ Yes

☐ No



H. Plate or Tube Data

1. Describe the plate dimensions (if applicable):

a. What is the height of the plate? _____

b. What is the length of the plate? _____

c. What is the thickness of the plate? _____

d. How many plates are there? _____

e. What is the spacing between the plates? _____

2. Describe the tube dimensions:

a. What is the height of the tube? _____

b. What is the inside diameter of the tube? _____

c. What is the outside diameter of the tube? _____

d. How many tubes are there? _____

e. What is the spacing between the tubes? _____

I. Particulate Removal Form Collection Electrodes

1. Thickness of the particulates at cleaning: _____

2. Method is used in cleaning the electrodes: _____

3. How often are the electrodes cleaned? _____

4. How many collection hoppers are there? _____

5. What is the capacity of each hopper? _____

6. How often are the hoppers cleaned? _____

7. What type of rapper is used? _____

8. What type of rapper control is used? _____

magnetic, pneumatic, etc.

9. What is the total time per cleaning sequence? _____

10. What is the ultimate disposal method? _____



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention - Air Control

BWP SFC-6 (for use with BWP AQ 02, 03)

Supplemental Form for Electrostatic Precipitator

Transmittal Number _____

Facility _____

J. Miscellaneous Data

1. Pressure drop across the unit: _____

in. water

2. Residence time of gases in the collection zone: _____

seconds

3. How many fields are there? _____

4. What is the size of the fields? _____

5. What is the field efficiency? _____

% each field

6. What is the aspect ratio? _____

7. What is the superficial velocity? _____

8. What type of insulators are used? _____

9. Describe the specific collecting area (SCA) (sq. ft/1000 ACFM):

10. Describe the specific corona power (SCP) (watts/1000 ACFM):

K. Certification

The seal and signature of a Massachusetts Registered Professional Engineer must be entered below. This certifies that the information contained in this form has been checked for accuracy, and that the design represents good air pollution control engineering practice. (These must be originals; no photocopies, etc. of the seal and signature will be accepted.)

Print name _____

Authorized signature _____

Position/title _____

Representing _____

Date _____

PE number _____